

Multivariate analysis of chemical composition of leaf essential oils of Lauraceae species from Brazilian Amazon

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Lauraceae comprise over 2000 species, which are generally known for their high content of essential oils (EOs) and economic importance due to numerous applications such as the use of their woods in constructions and luxury furniture^{1,2}. The leaf essential oils (EO) of fourteen Lauraceae species were collected in the Caxiuana National Forrest (Brazil) in July, 2015. The plant material was air-dried and pulverized and then its EO was obtained by hydrodistillation using a Clevenger-type apparatus (3h). The chemical composition analysis by GC and GC-MS resulted in the identification of 144 compounds, such as monoterpenes, sesquiterpenes and phenylpropanoids. The percentage of area to each compound was normalized and the values above than 5% were considered as variable to Hierarchical Clusters Analysis (HCA) and Principal Component Analysis (PCA). The HCA and PCA analysis classified these species into five groups. The higher distance was found to two specimens of *Licaria rigida* (LRI e LRII) due to their high amount of 6-methoxy-elemicin and β -caryophyllene, respectively. The EO of *Endlicheria arenosa* (EAR), *Ocotea caudata* (OCA) and *O. guianensis* (OGU) were grouped due to the similar content of bicyclogermacrene, germacrene D, β -caryophyllene and spathulenol. *Nectandra cuspidata* (NCU), *Ocotea oblonga* (OBL), *O. glomerata* (OGL), *O. caniculata* (OCN), *L. rigida* III (LRIII) and *Nectandra puberula* (NPU) displayed β -caryophyllene, bicyclogermacrene and caryophyllene oxide as more frequent compounds. However, δ -cadinene, β -selinene and apiole were the main compounds in the samples LRIII, OCN and NPU, respectively. *Ocotea longifolia* (OLO) and *O. caniculata* II (OCNII) oils showed a higher concentration of spathulenol and smaller content of β -caryophyllene (< 1%). The results indicated that the concentrations of β -caryophyllene, germacrene D, caryophyllene oxide and spathulenol presents high influence in the group separation.

1. Joshi, S. C., Verma, A. R. & Mathela, C. S., 2010, Food Chem. Toxicol., **48**, 37-40.

2. Da Silva, J.K.R., GOMES, M. V. S., Maia, J.G.S., Dosoky, N. S. & Setzer, W. N., 2016, Int. J. Applied Res. Nat. Prod., **9**, 1-9.

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